

Amendments to the Claims: Please cancel claims 25-30, 34-39 and 45-48 without prejudice to Applicants' right to pursue similar claims in continuation applications.

This listing of claims will replace all prior versions, and listings, of claims in this application.

Listing of Claims:

1. (previously presented) A catheter for use in a medical procedure, comprising:
a catheter body comprising an outer jacket, a first inner tube attached to the outer jacket, a second inner tube attached to the outer jacket, and wherein the first inner tube abuts the second inner tube;
a catheter tip operably connected to the catheter body;
a first electrically conductive element integrally formed with the first inner tube;
a second electrically conductive element integrally formed with the second inner tube; and
at least one energy delivery element operably connected to the first electrically conductive element
wherein the first electrically conductive element and the second electrically conductive element are operably connected.
2. – 5. (canceled)
6. (previously presented) The catheter of claim 1, wherein the operable connection between the first electrically conductive element and the second electrically conductive element is an electrical connection.

7. (previously presented) A catheter for use in a medical procedure, comprising:

a catheter body comprising an outer jacket, a first inner tube attached to the outer jacket, a second inner tube attached to the outer jacket, and wherein the first inner tube abuts the second inner tube;

a catheter tip operably connected to the catheter body;

a first electrically conductive element integrally formed with the jacket; and

a second electrically conductive element integrally formed with the first inner tube;

at least one energy delivery element operably connected to the first electrically conductive element; and

wherein the first electrically conductive element and the second electrically conductive element are operably connected.

8. (original) The catheter of claim 7, wherein the at least one energy delivery element is integrally formed on the exterior of the jacket.

9. (original) The catheter of claim 7, wherein the energy delivery element comprises an electrode flush with the surface of the tip.

10. (original) The catheter of claim 9, wherein the electrode encompasses the entirety of an exterior surface of the tip.

11. (previously presented) A lead system for eliciting an electrical response from tissue, comprising:

- a lead body solid in lateral cross-section;
- a lead tip operably connected to the lead body;
- a first electrically conductive element integrally formed with the lead body;
- a first energy delivery element operably connected to the first electrically conductive element;
- a second electrically conductive element integrally formed with the lead body; and
- a first electrical sensing element operably connected to the second electrically conductive element.

12. (canceled)

13. (previously presented) A lead for eliciting an electrical response from tissue, comprising:

- a lead body;
- a lead tip operably connected to the lead body;
- a first electrically conductive element integrally formed with the lead body;
- a first energy delivery element operably connected to the first electrically conductive element;
- a second electrically conductive element integrally formed with the lead body;
- a first electrical sensing element operably connected to the second electrically conductive element; and

a stylette; and

wherein the lead body further comprises a lumen, the lumen closed at a distal end of the lead body; and

the stylette is disposed within the lumen.

14. (previously presented) The lead system of claim 11, further comprising:

a power source operably connected to the first electrically conductive element, the power source operative to transmit electrical impulses along the first electrically conductive element to the first energy delivery element at timed intervals; and

a diagnostic apparatus operably connected to the second electrically conductive element.

15. (previously presented) The lead system of claim 14, further comprising an adapter, the adapter comprising:

a first adapter trace operably connecting the first electrically conductive element and the power source; and

a second adapter trace operably connecting the second electrically conductive element and the diagnostic apparatus.

16. (Original) A multi-layer catheter for use in a medical procedure, comprising:

an outer jacket;

a first inner jacket nested within the outer jacket and extending along at least a portion of the outer jacket;

a second inner jacket nested within the first inner jacket and extending along at least a portion of the first inner jacket;

an outer tube nested within the outer jacket and abutting the first inner jacket;

an inner tube nested within the outer tube and abutting the second inner jacket;

a first electrically conductive trace extending along the outer jacket; and

a first electrode formed on an outer surface of the outer jacket, the first electrode operably connected to the first electrically conductive trace.

17. (Original) The multi-layer catheter of claim 16, wherein:

a distal end of the first inner jacket and a distal end of the second inner jacket form a distal stair-step configuration in longitudinal cross-section; and

a proximal end of the first inner jacket and a proximal end of the second inner jacket form a stair-step configuration in longitudinal cross-section.

18. (Original) The multi-layer catheter of claim 17, further comprising:

a second electrically conductive trace extending along the outer jacket; and

an electrical element formed on an outer surface of the outer jacket, the first electrode operably connected to the first electrically conductive trace.

19. (Original) The multi-layer catheter of claim 18, further comprising:

an electrically nonconductive layer separating the first and second traces; and

wherein the first and second traces are longitudinally aligned.

20. (Original) The multi-layer catheter of claim 18, wherein the electrical element is a thermistor.

21. (withdrawn) A tubular body for a catheter or lead, the body comprising a longitudinally extending proximal fragmentary trace in electrical communication with a longitudinally extending distal fragmentary trace.

22. (withdrawn) A tubular body of claim 21, wherein the fragmentary traces at least partially overlap.

23. (withdrawn) A tubular body of claim 21, further comprising an electrode in electrical communication with the distal fragmentary trace.

24. (withdrawn) A tubular body of claim 21, further comprising an adapter that includes the proximal fragmentary trace, which is adapted to electrically communicate with an electrical diagnostic or treatment apparatus.

25-30. (canceled)

31. (withdrawn) A tubular body for a catheter or lead, the body comprising a longitudinally extending electrically nonconductive portion and a conductive element formed on the nonconductive portion via an electrodepositing or sputtering process.

32. (withdrawn) The catheter or lead of claim 31, wherein the conductive element longitudinally extends along the nonconductive portion.

33. (withdrawn) The catheter or lead of claim 31, further comprising an electrode operably coupled to a distal end of the catheter or lead and in electrical communication with the conductive element.

34 – 39. (canceled)

40. (withdrawn) A method of manufacturing a tubular body for a catheter or lead, the method comprising providing a tubular polymer portion and forming a longitudinally extending trace on the polymer portion.

41. (withdrawn) The method of claim 40, wherein the trace is formed via an electrodepositioning or sputtering process.

42. (withdrawn) The method of claim 40, further comprising forming a longitudinally extending groove in the tubular polymer portion and forming the trace in the groove.

43. (withdrawn) The method of claim 40, wherein the trace is formed via depositing an electrically conductive material on the polymer portion and removing excessive conductive material via abrasion, laser light, or chemical.

44. (withdrawn) A method of manufacturing a tubular body for a catheter or lead, the method comprising providing a tubular polymer portion, longitudinally extending a conductive element along an outer surface of the tubular polymer portion, and extruding an outer polymer layer over the tubular polymer portion.

45 – 48. (canceled)

49. (previously presented) A lead for eliciting an electrical response from tissue, comprising:

a lead body comprising at least one polymeric layer;

a lead tip operably connected to the lead body;

a first electrically conductive element integrally formed with the at least one polymeric layer;

a first energy delivery element operably connected to the first one electrically conductive element;

a second electrically conductive element integrally formed with the catheter body; and

a first electrical sensing element operably connected to the second electrically conductive element.

50. (previously presented) The catheter of claim 49, wherein the electrically conductive element is at least partially recessed in the at least one polymeric layer.

51. (previously presented) The catheter of claim 49, wherein the electrically conductive element is a wire.

52. (previously presented) The catheter of claim 49, wherein the electrically conductive element is a trace.

53. (new) A catheter or lead comprising

a tubular body portion and a conductive element co-extruded with the tubular body portion, wherein the conductive element longitudinally extends along the tubular body portion;

an electrode operably coupled to a distal end of the catheter or lead and in electrical communication with the conductive element; and

a thermocouple wire co-extruded with the tubular body portion.

54. (new) The catheter or lead of claim 53, wherein the thermocouple wire is in thermal communication with the electrode.

55. (new) The catheter or lead of claim 54, further comprising an electrically nonconductive layer separating the thermocouple wire from the electrode.